WebObjects and J2EE Deployment Workshop

Session 610

These are confidential sessions—please refrain from filming or taking pictures.

Enterprise IT

WebObjects and J2EE Deployment Workshop

Ray Kiddy
WebObjects/EOF Engineer

http://developer.apple.com/wwdc2005/

Introduction

- Finished with development. What now?
- Show me the data!
  - Configuring EOF
- Easy ways to deploy your applications
  - WO Apps from the inside out
  - Deploying with WOMonitor
- Other ways to deploy your applications
  - JBoss
- The pieces of the puzzle, and how they connect
  - Troubleshooting and scalability
- How to know when you are done

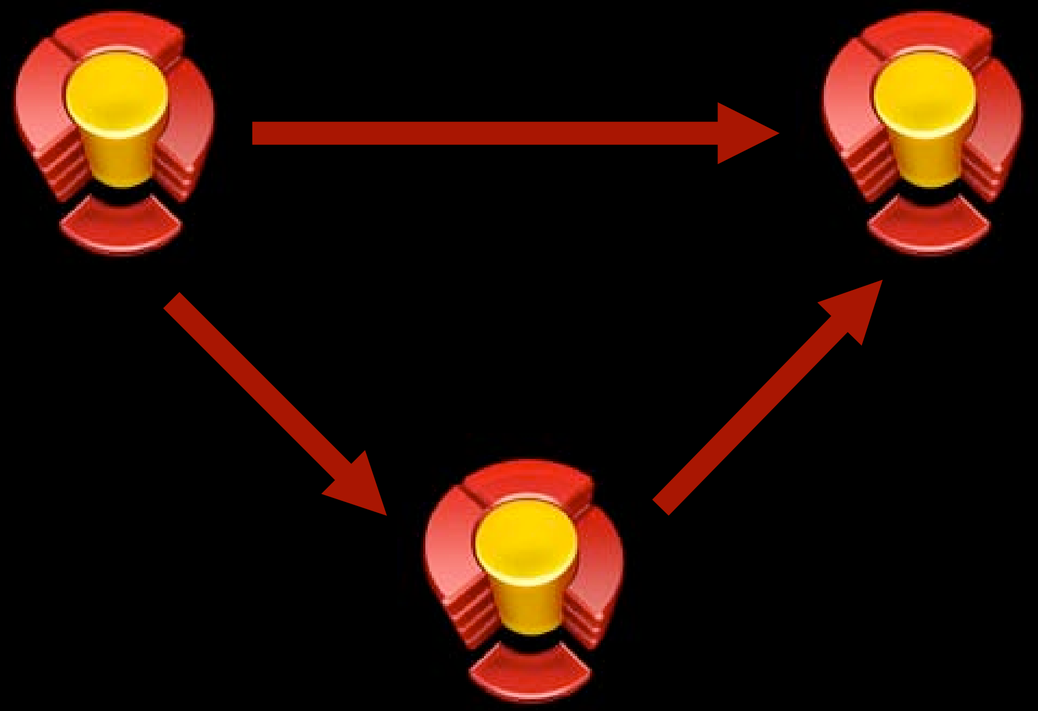
What You'll Learn

- How to ask some good questions
  - The buzzwords, the classes, the tools
- How to start deploying an application
  - Via direct-connect, via adaptor
- How to deploy, again, an application
  - Not just httpd, more acronyms!
- How to tell if something goes wrong
  - Monitoring, not just watching the phone
- What to do when something goes wrong
  - Don't panic!

The WebObjects Deployment Vocabulary

- WebObjects applications
  - Aka Java “Servlet” applications
- Apache HTTP Server
- MySQL and/or Oracle
- Server admin application
- WOMonitor/wotaskd
- Tomcat, aka “Apache Jakarta Tomcat”
- Axis, aka “Web Services Project @ Apache”
- JBoss, aka “Marc Fleury, PhD”

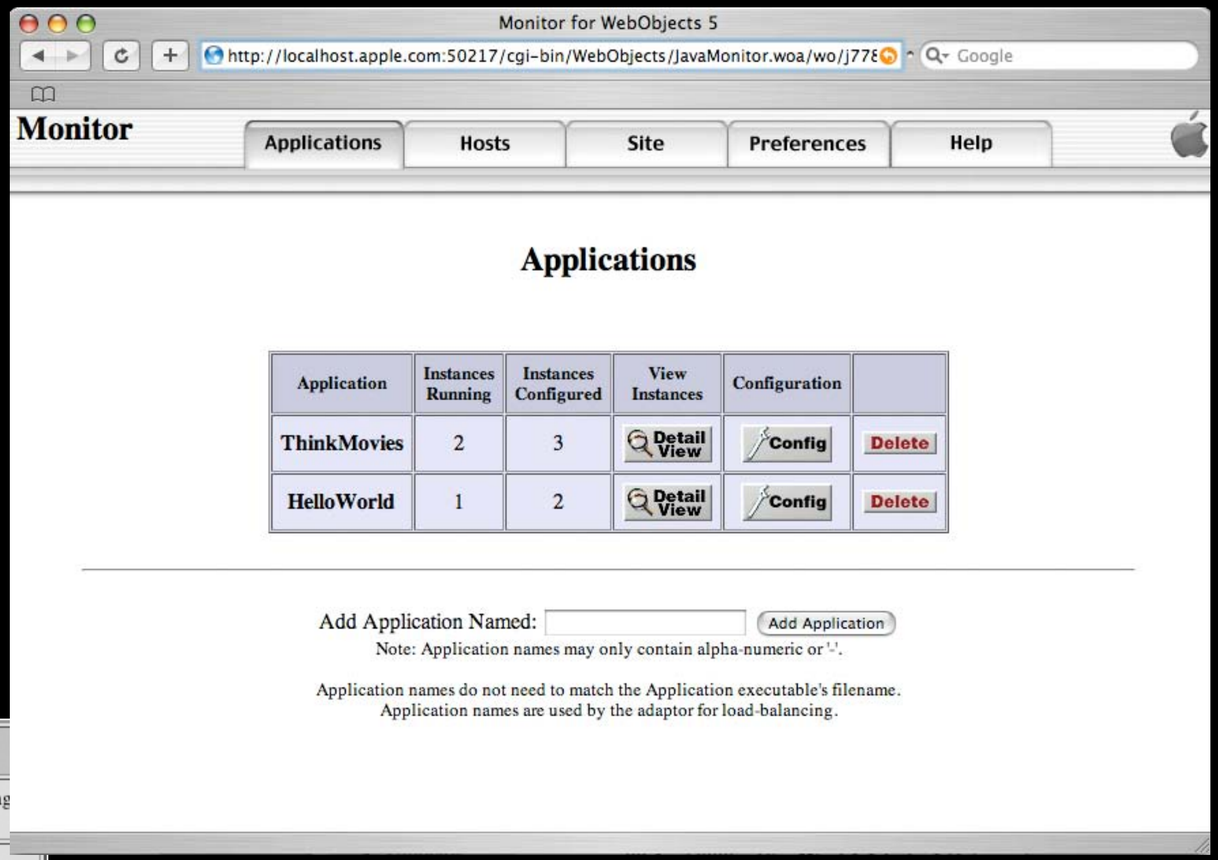
Information Is Not Knowledge



Related session **Administering MySQL Databases**	**Session 648** **Thursday 9:00am**
Related session **Configuring and Deploying Oracle on Mac OS X Server**	**Session 634** **Friday 9:00am**

Knowledge Is Not Wisdom

Wisdom Is Not Truth



Application Statistics

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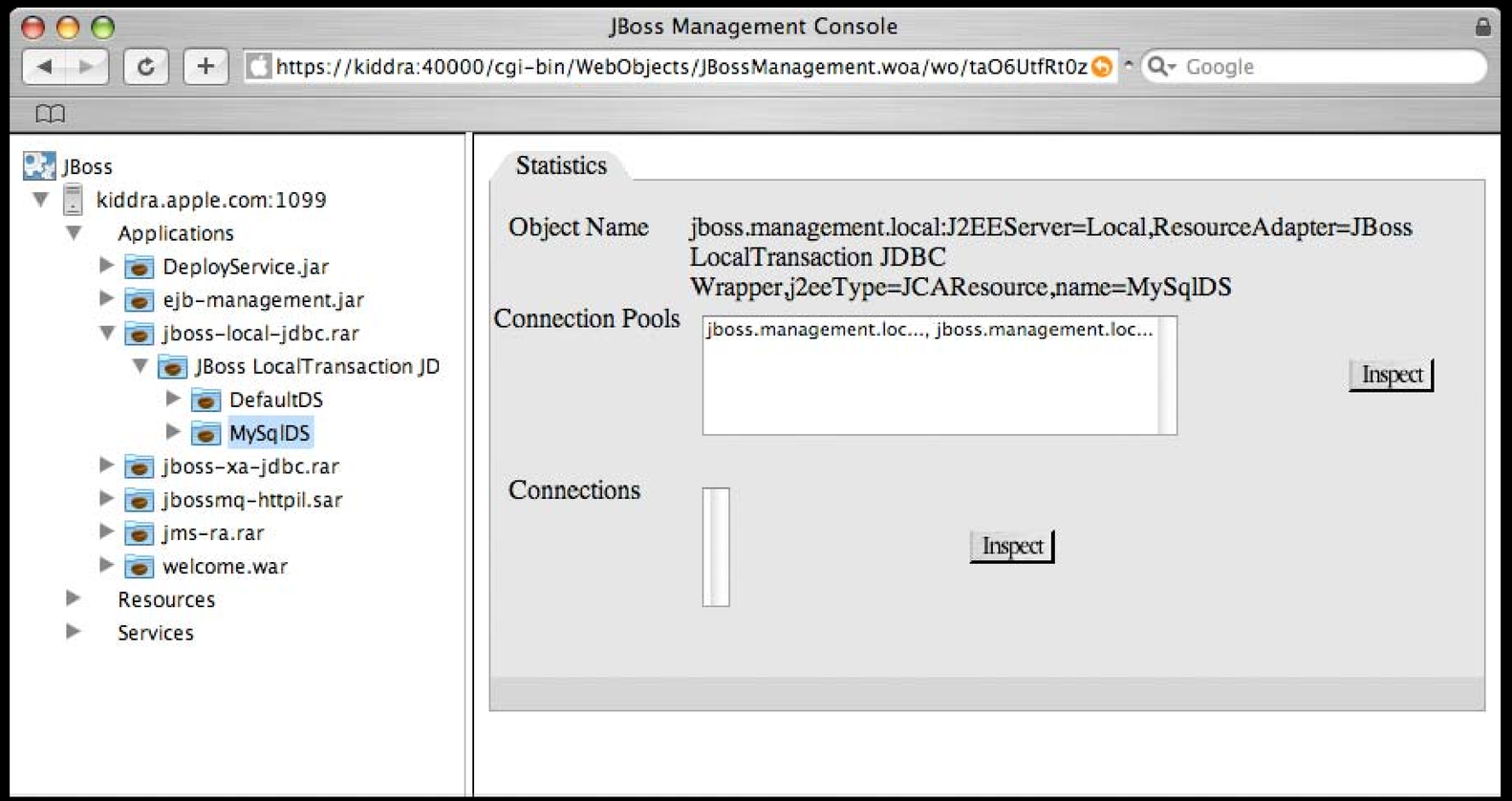
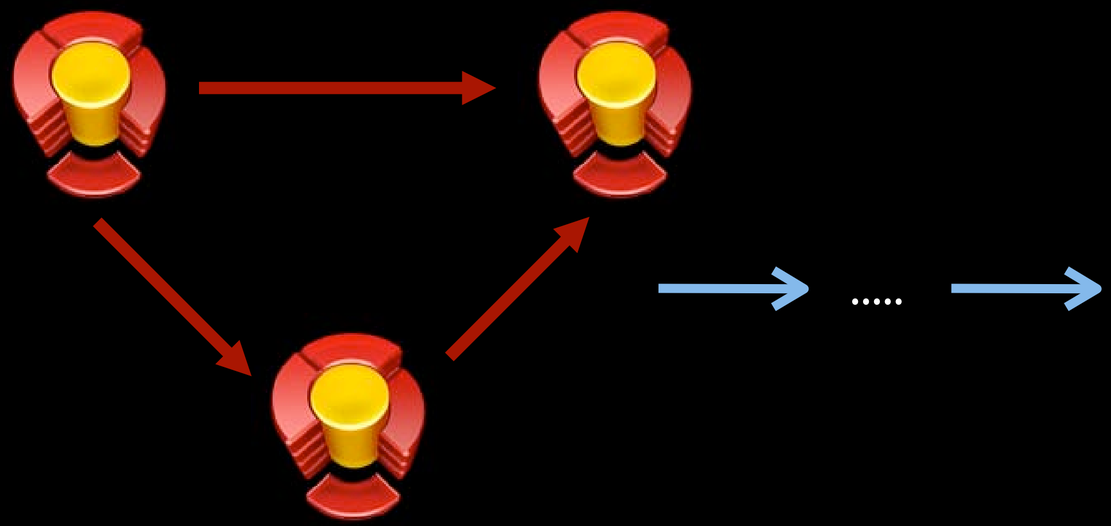
Overall	4	0.166	2.901	0.166	2.901
Component Actions	3	0.113	NA		NA
Direct Actions	1	0.000	NA		NA
Started at	17:04:11 on Wed, May 25 2005 America/Los_Angeles				
Running time	0 days, 0 hours, 0 minutes, 12 seconds				

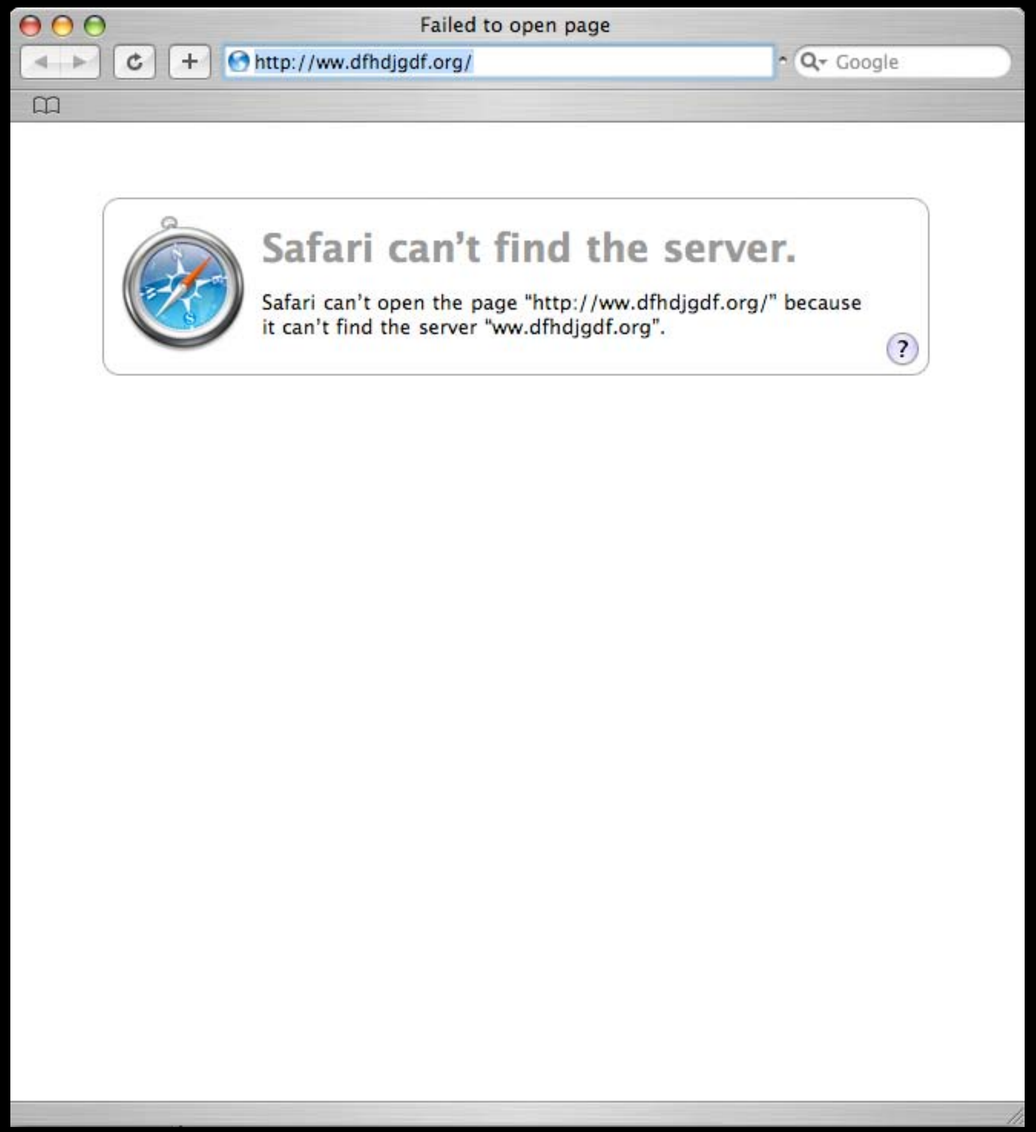
* The sample size for Moving Averages is 100 transactions.

Truth Is Not Beauty



Beauty Is Not Love





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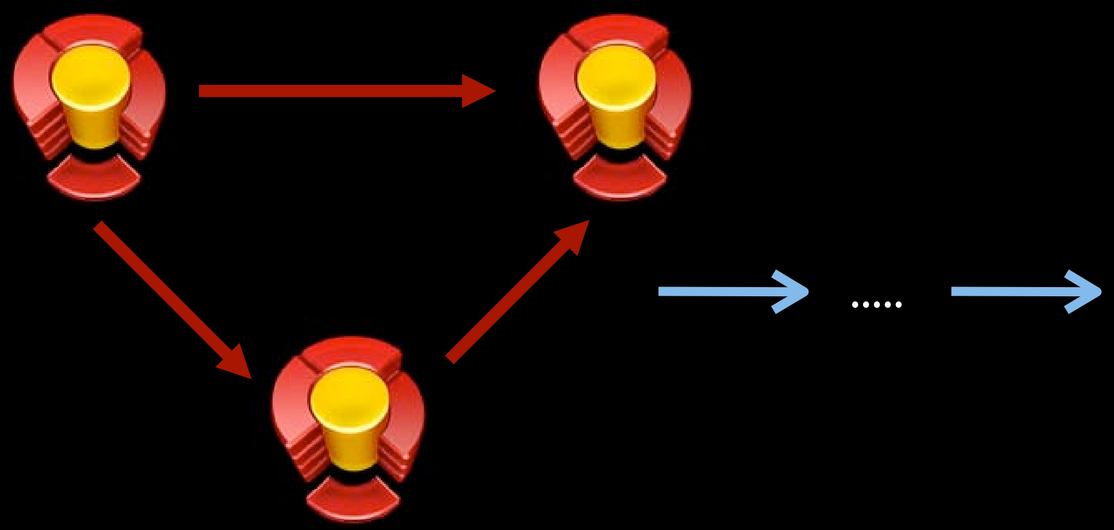
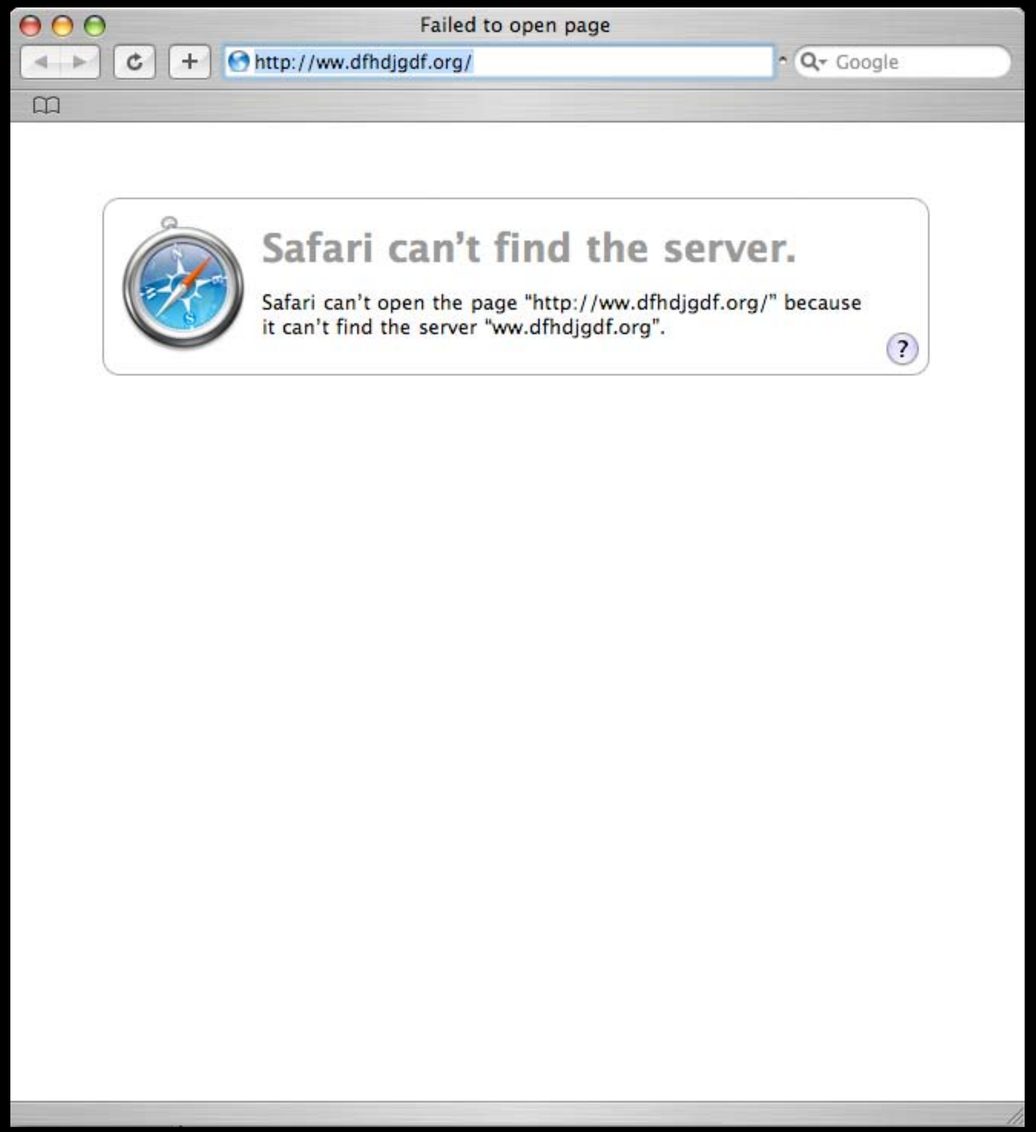
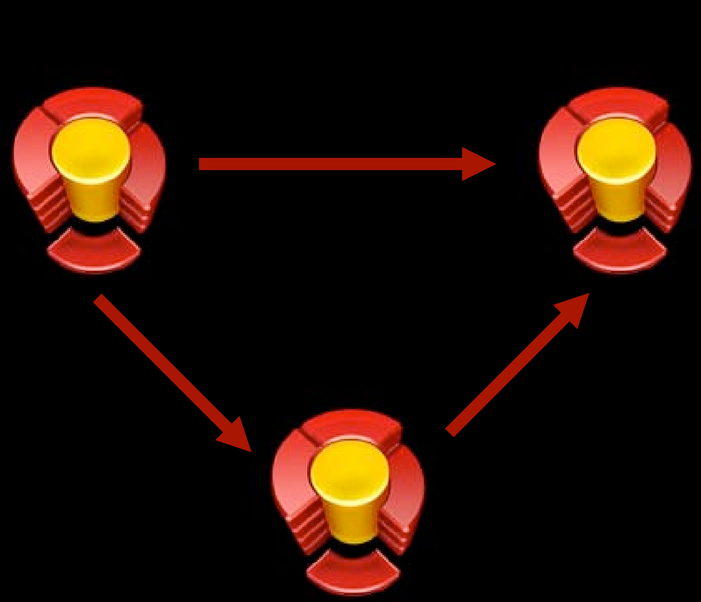




Love Is Not Music



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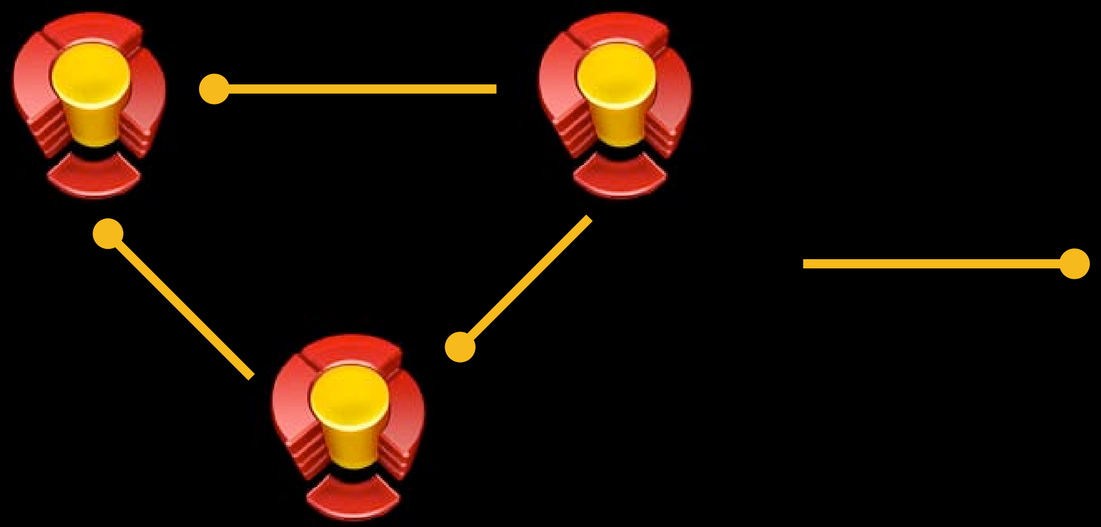

Music Is the Best!

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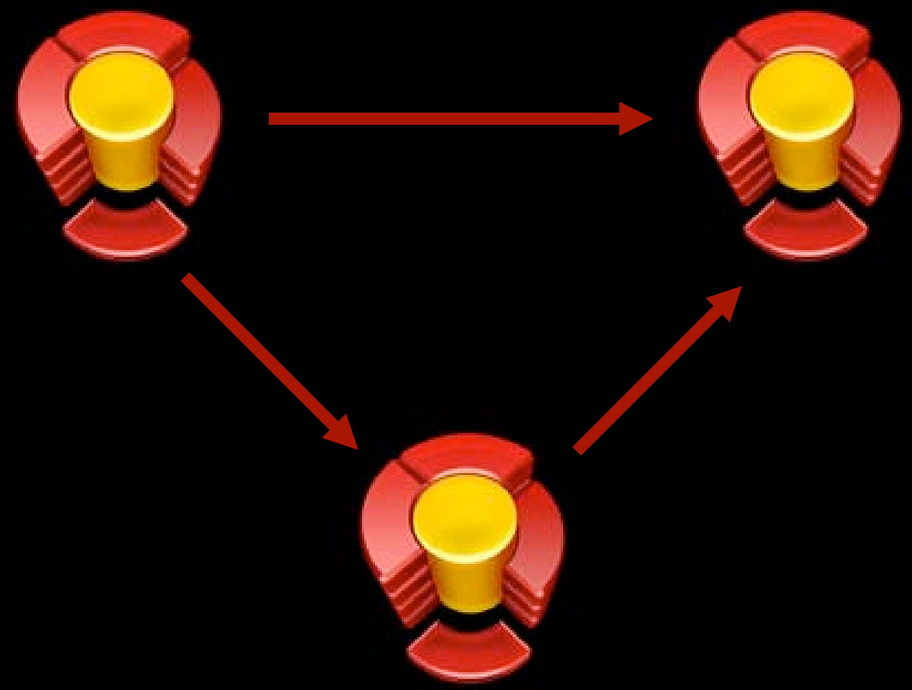

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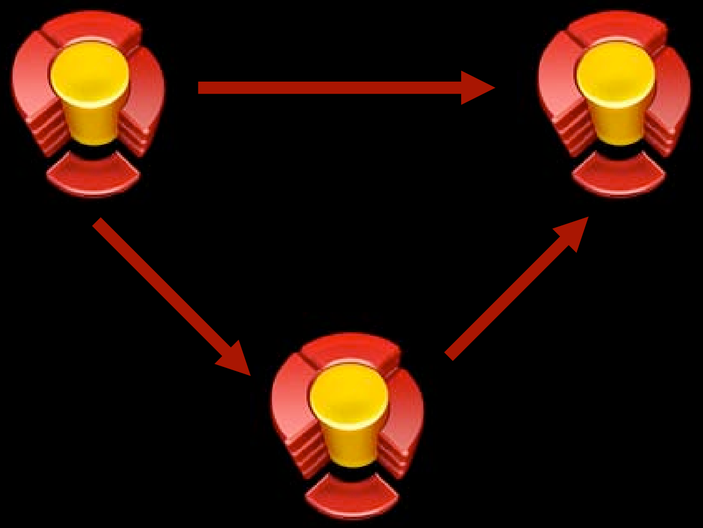
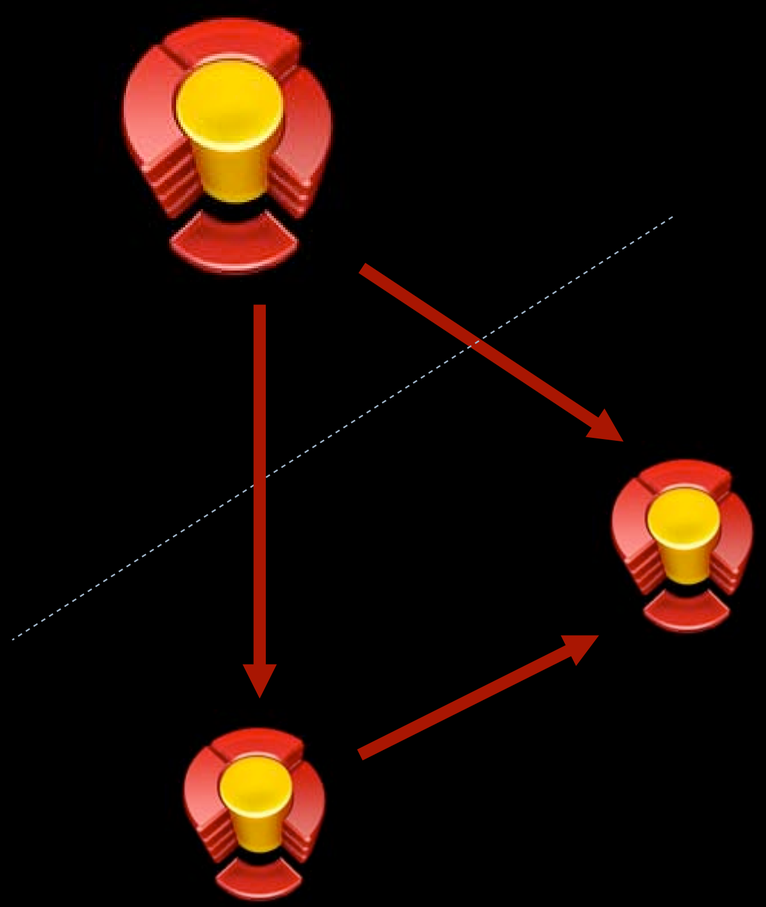


The Object Graph

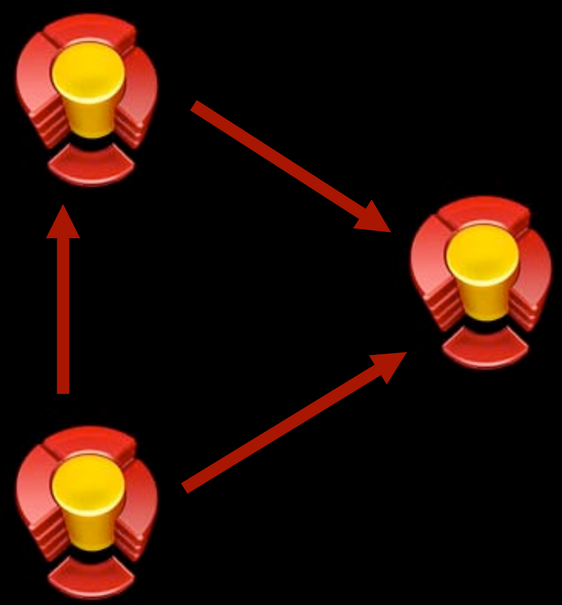
- Do you care about the EOModel?
  - Shared data
  - Undo/Redo
  - Freshness and synchronicity
  - Managing writes to the database
- What does the developer need to know?
  - Why do you ask?
  - Abstract the data….



Shared Data

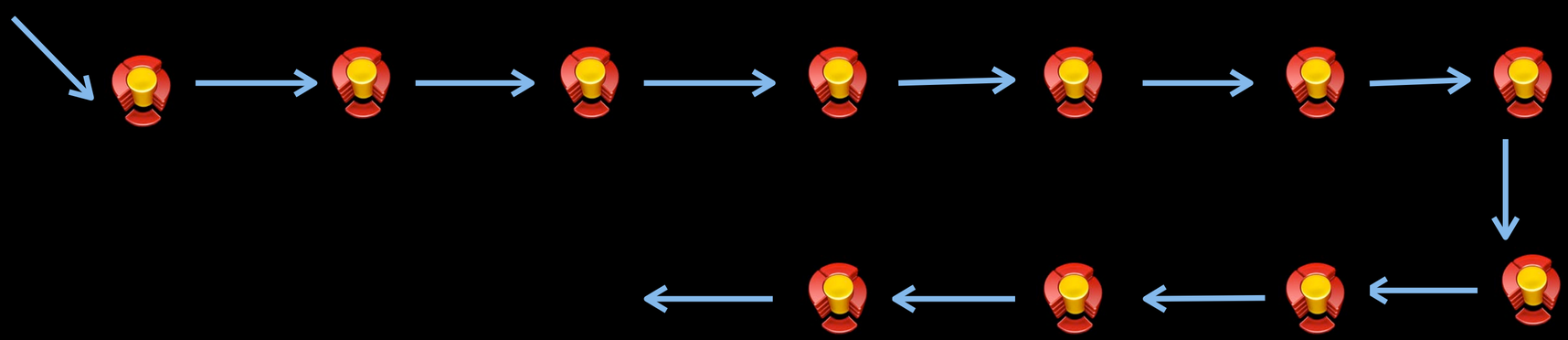
- Share data if you can
  - Mostly static data
  - Data that gets updated off-line or once every X number of days
- Know how to update off-cycle
  - Or know how to say “No”
- Refer to:

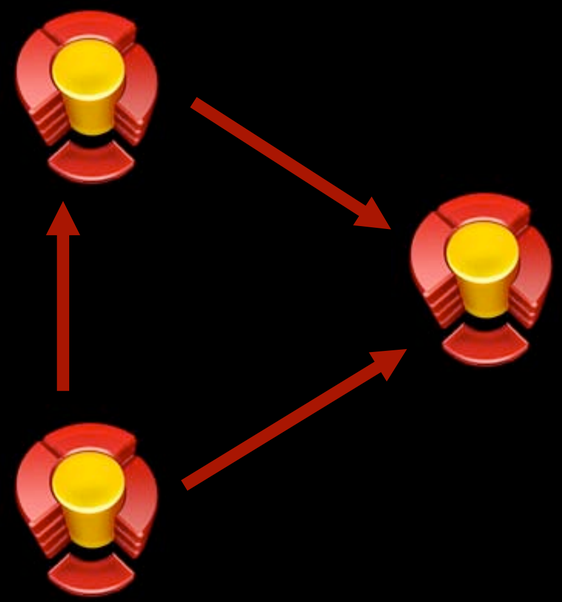
```
EOSharedEditingContext
```



Undo/Redo

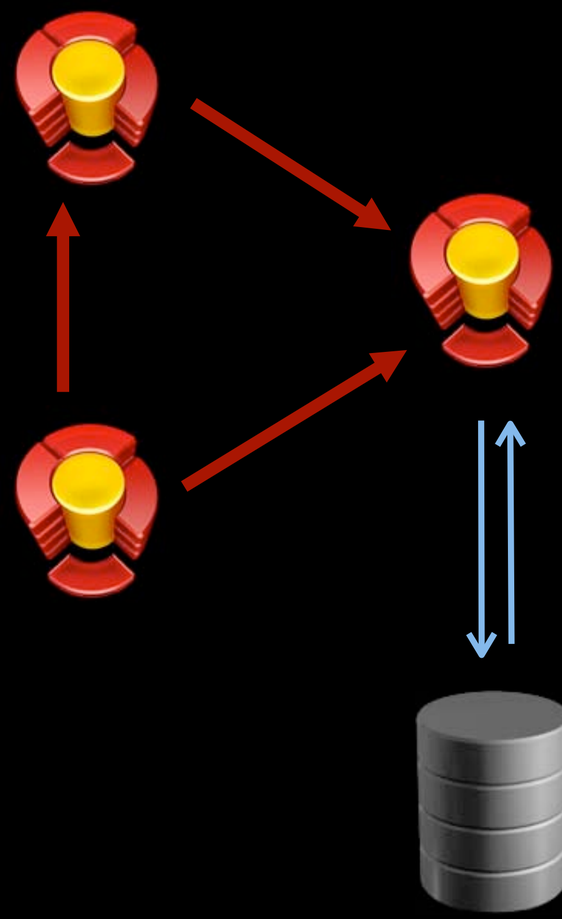
- How many levels of Undo/Redo
  - Encourage use of the “back button”?
  - How many edits for a user?
- `EOEditingContext`
  - `setUndoManager(myUndo);`
  - `undoManager();`





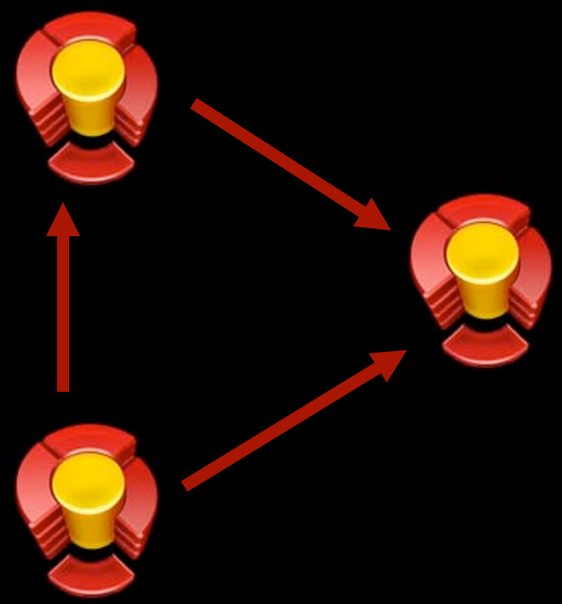
Freshness and Synchronicity

- You need it when?
- Why do you need everything?
- Who wants to know?
- `EOEditingContext`
  - `defaultFetchTimestampLag();`
  - `fetchTimestamp();`
  - `setDefaultFetchTimestampLag(msec)`
  - `setFetchTimestamp(msec);`



Managing Writes to the Database

- `defaultEditingContext().session()`
- How may writes per user?
- When is the data needed?
- Write less, read often



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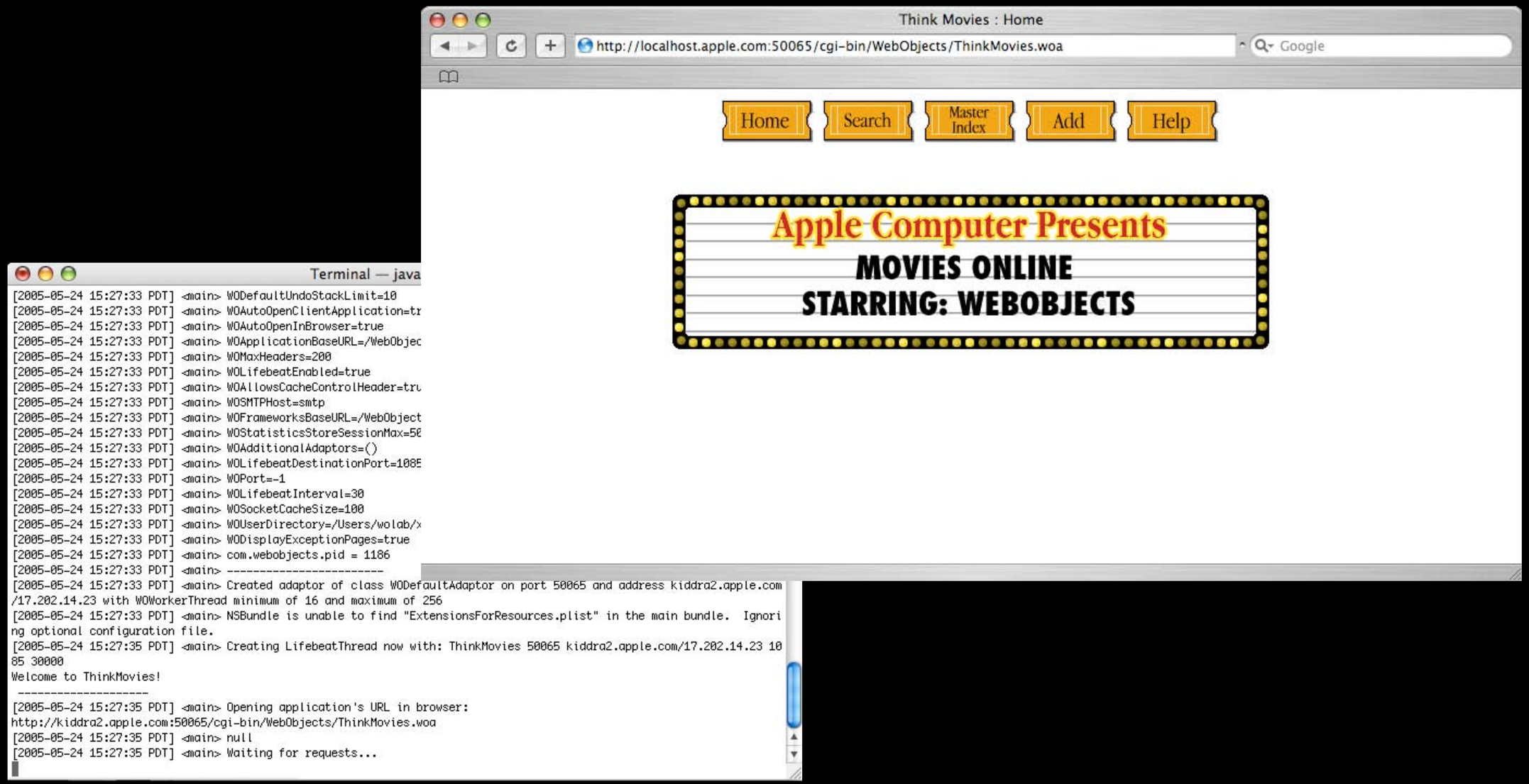

WebObjects Applications

- The Classpath
- Server-side resources
- Client-side resources
- Connecting, directly

The Classpath

- RTFC = Read The Fundamental Classpath
- Inside the <Application>.woa directory
  - `Contents/MacOS/MacOSClassPath.txt`
- In the console output:

```
% ThinkMovies.woa/ThinkMovies
Reading MacOSClassPath.txt ...
Launching ThinkMovies.woa ...
java -XX:NewSize=2m -Xmx64m -Xms32m -DWORootDirectory="/System" -DWOLocalRootDirectory="" -DWOUserDirectory="/Users/wolab/xc/
build/Development" -DWOEnvClassPath="" -DWOApplicationClass=webobjectsexamples.thinkmovies.Application -DWOPlatform=MacOS -
Dcom.webobjects.pid=1186 -classpath WOBootstrap.jar com.webobjects._bootstrap.WOBootstrap
appRoot is /Users/wolab/xc/build/Development/ThinkMovies.woa/Contents
Loading /Users/wolab/xc/build/Development/ThinkMovies.woa/Contents/MacOS/MacOSClassPath.txt
Generated classpath:
  /Users/wolab/xc/build/Development/ThinkMovies.woa/Contents/Resources/Java/ThinkMovies.jar
  /System/Library/Frameworks/JavaFoundation.framework/Resources/Java/javafoundation.jar
```

Server-Side Resources

- Your Business Logic
- Dynamically generated resources
- Custom WOComponent logic

Client-Side Resources

- Static resources (eg images, other media)
- Custom interface classes for Java Client applications

```
% xcodebuild install -configuration Deployment DSTROOT=/

% xcodebuild install -configuration WebServer DSTROOT=/
```

Connecting, Directly

- Add parameter to application
  - `-WODirectConnectEnabled YES -WOPort 55555`
- NOT suggested for real deployment

WebObjects Applications

- The Classpath
- Server-side resources
- Client-side resources
- Connecting, directly

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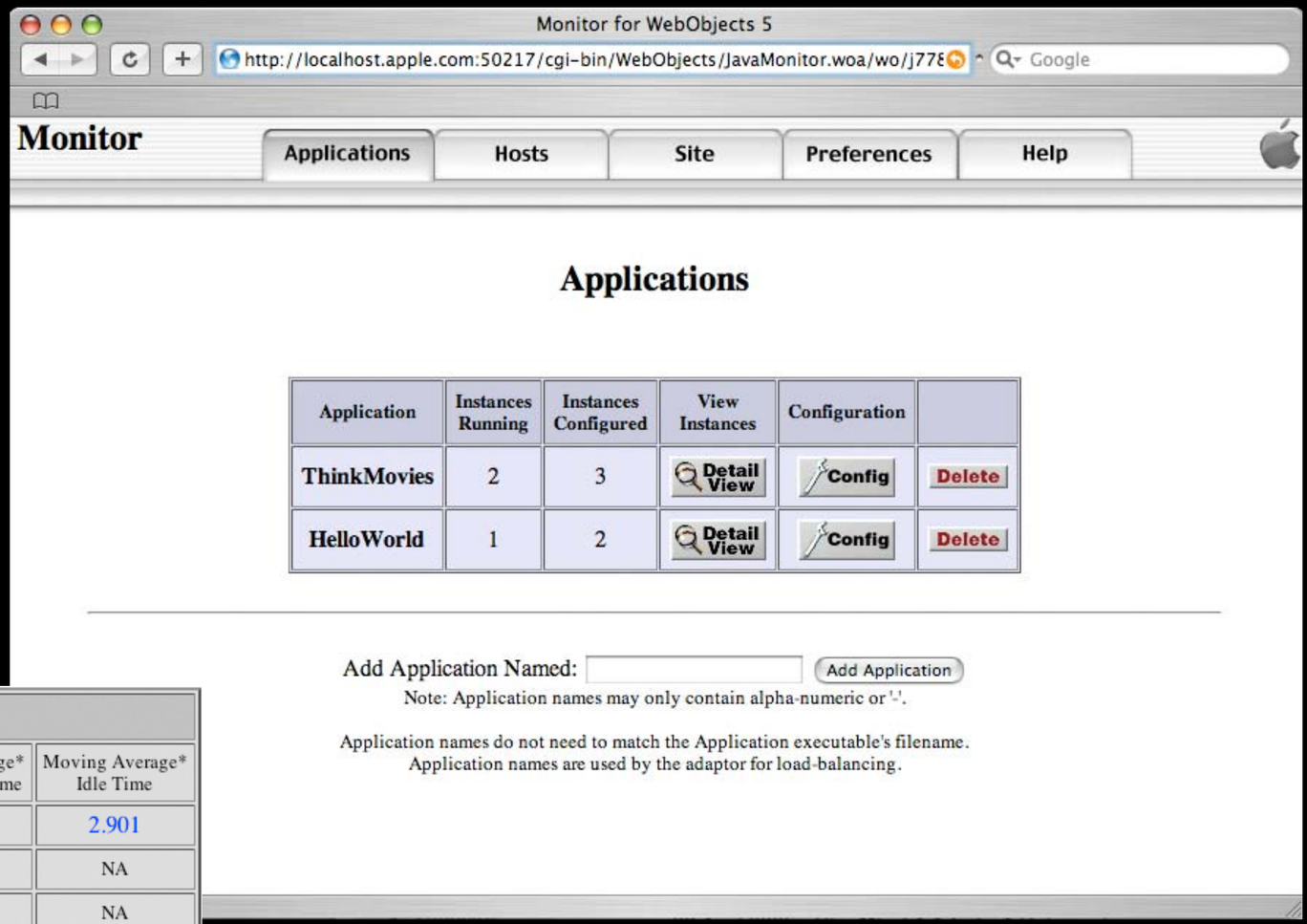

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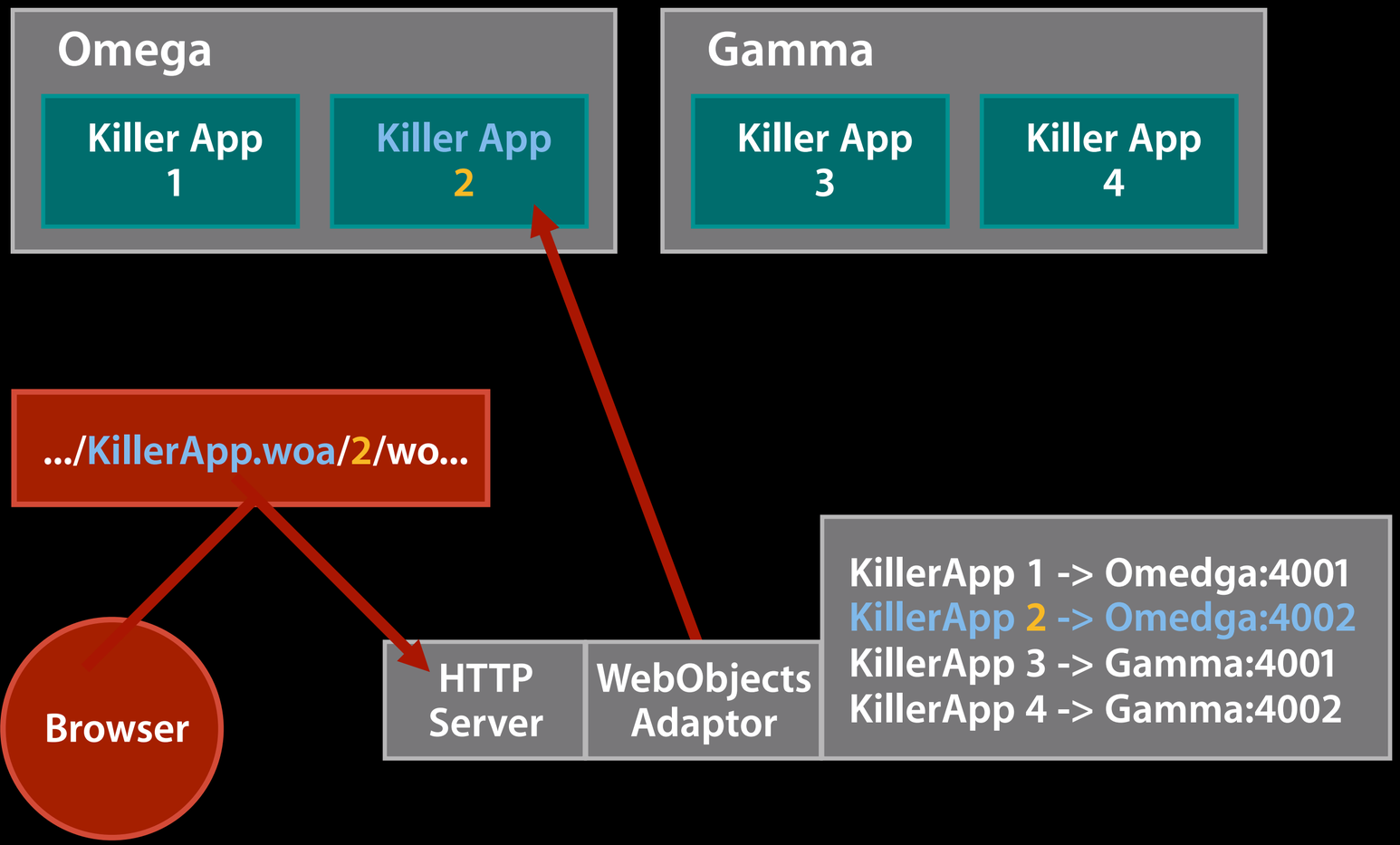
WOMonitor App Management

- WOAdaptor overview
- WOAdaptorInfo
- Configuring applications
- Managing applications

Adaptor Overview

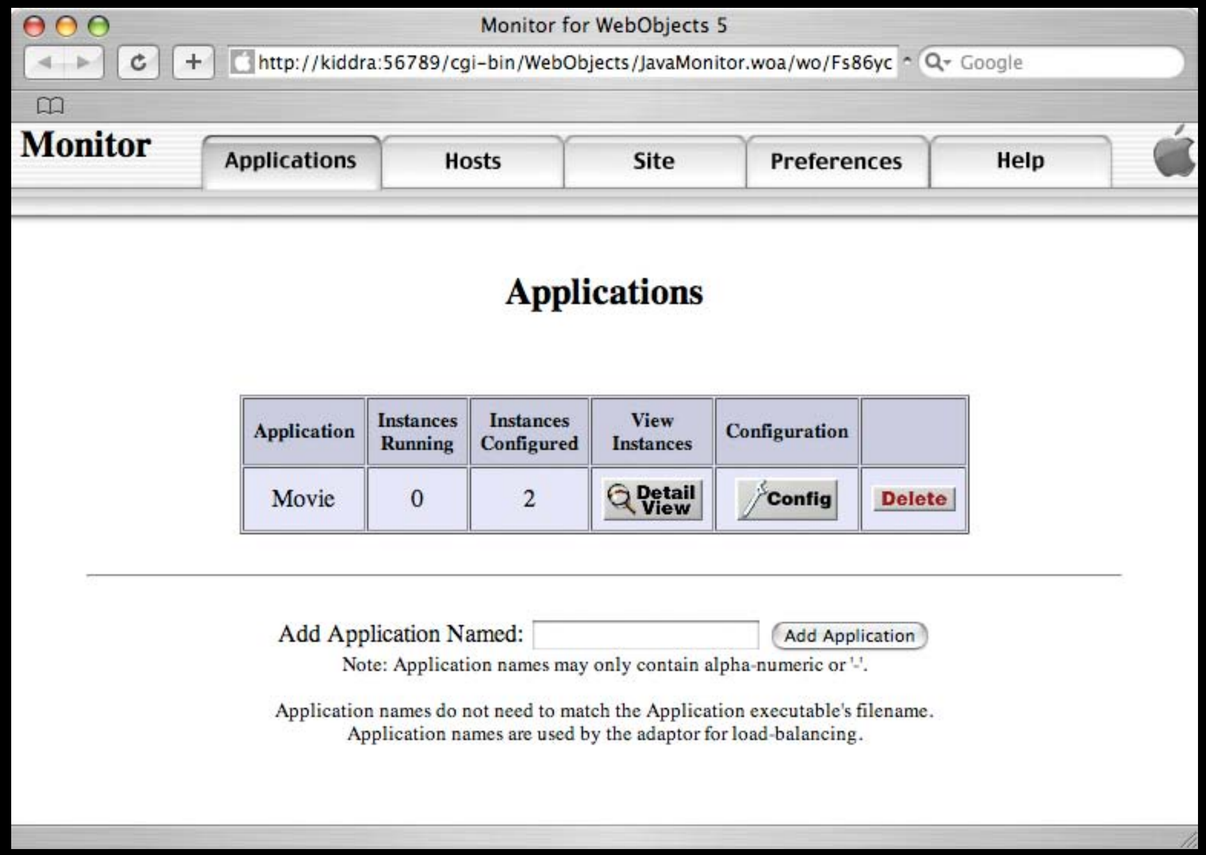


WOAdaptorInfo

- View adaptor status
- Detailed configuration information
  - Socket connect/receive/timeout
  - Refusing timeout
  - “Dead” timeout
- Links to all available instances
- Can be protected by password

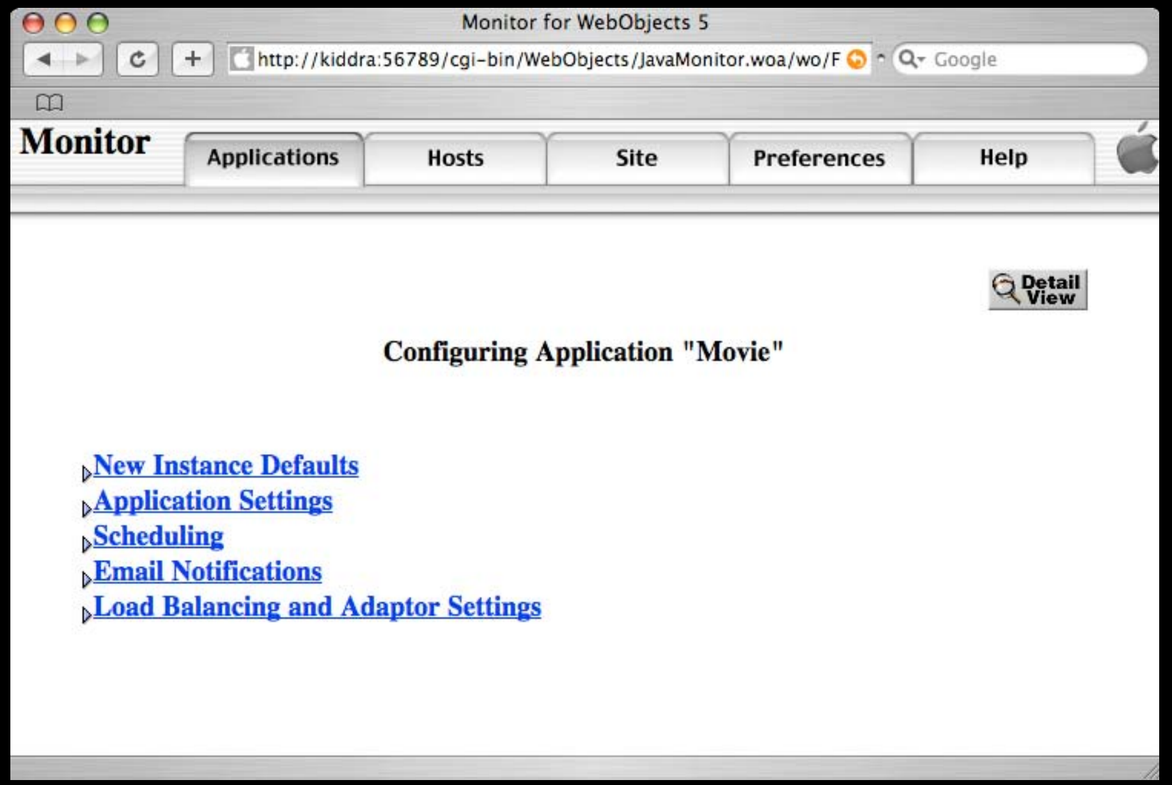
Managing Applications

- Manage many hosts
- Manage many instance on many hosts
- One WOMonitor per sub-net



Configuring Applications

- For all applications, or only for one
- Securable web interface
- Completely configure applications



WOMonitor App Management

- WOAdaptor overview
- Configuring applications
- Managing applications

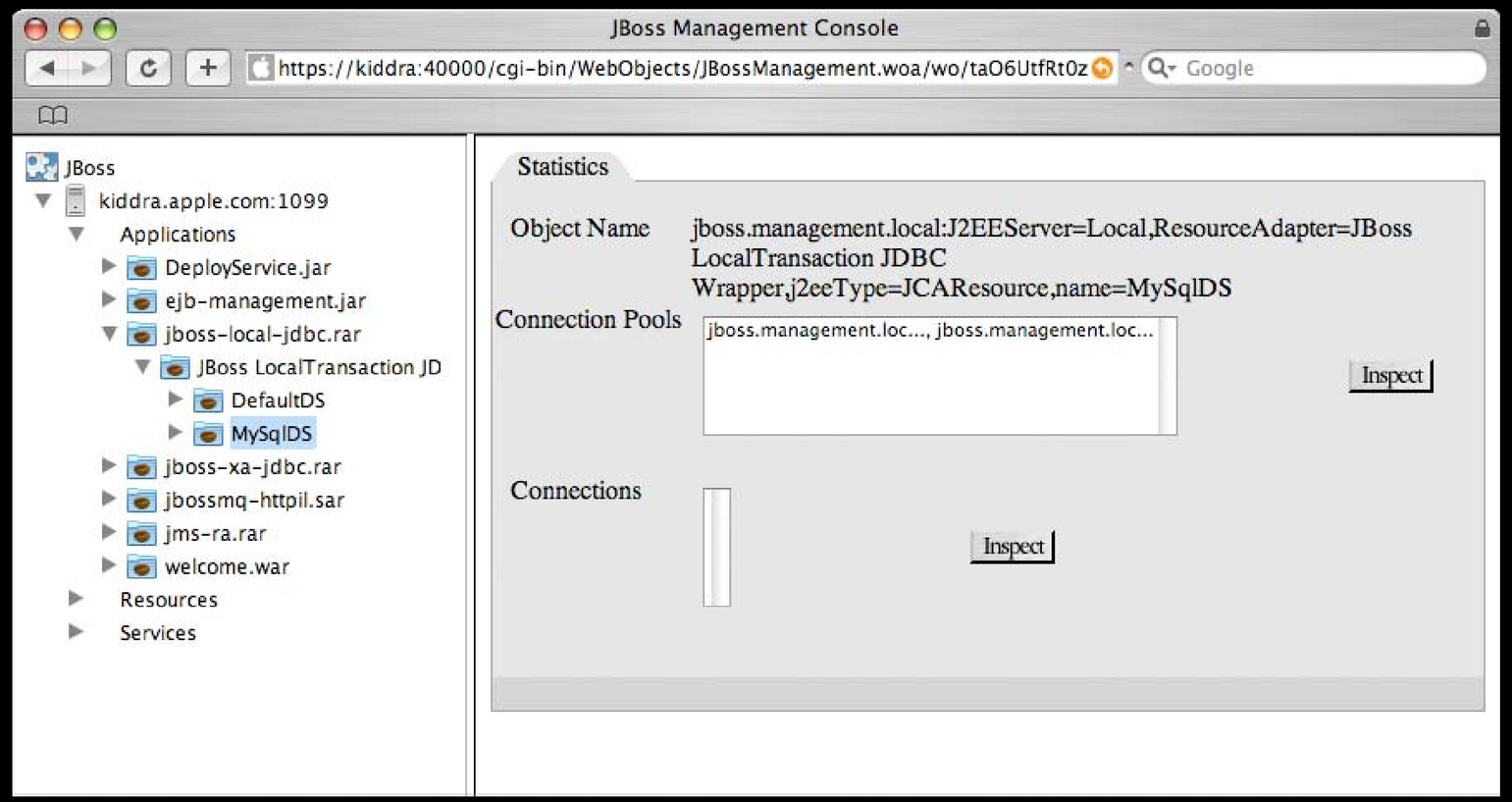
Demo

WOMonitor Administration

Chris Pavicich
WebObjects Engineer

http://developer.apple.com/wwdc2005/

Truth Is Not Beauty



Why Bother with J2EE?

- Standards-based deployment environment
- JMX tools for administrating applications
- “buzz word” compliant for selling to management

Getting Started

- Start with app built with J2EE support
- Can be deployed in any JBoss container
- Configuration via JBossManagement application
- Deployment via DeploymentTool application

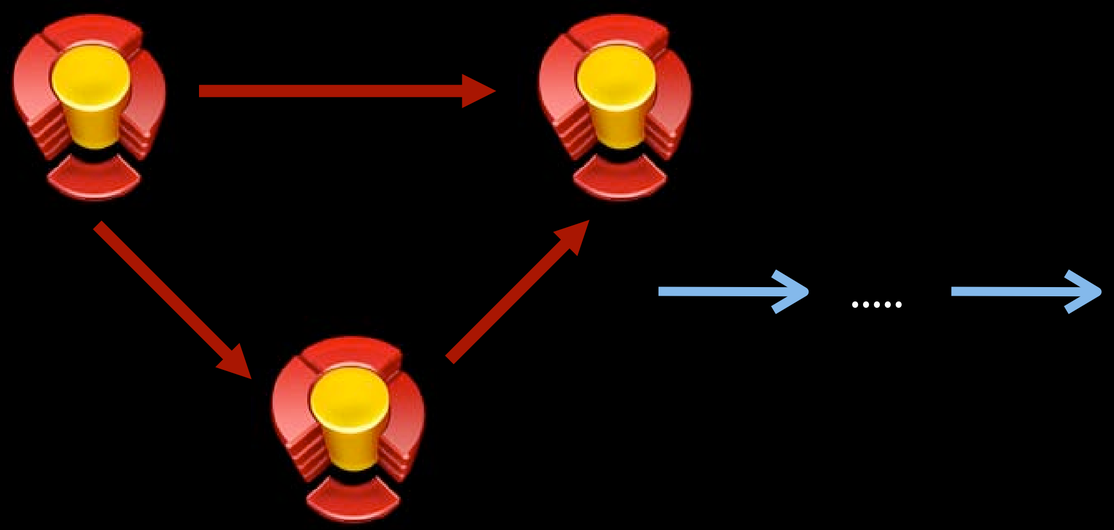
Demo

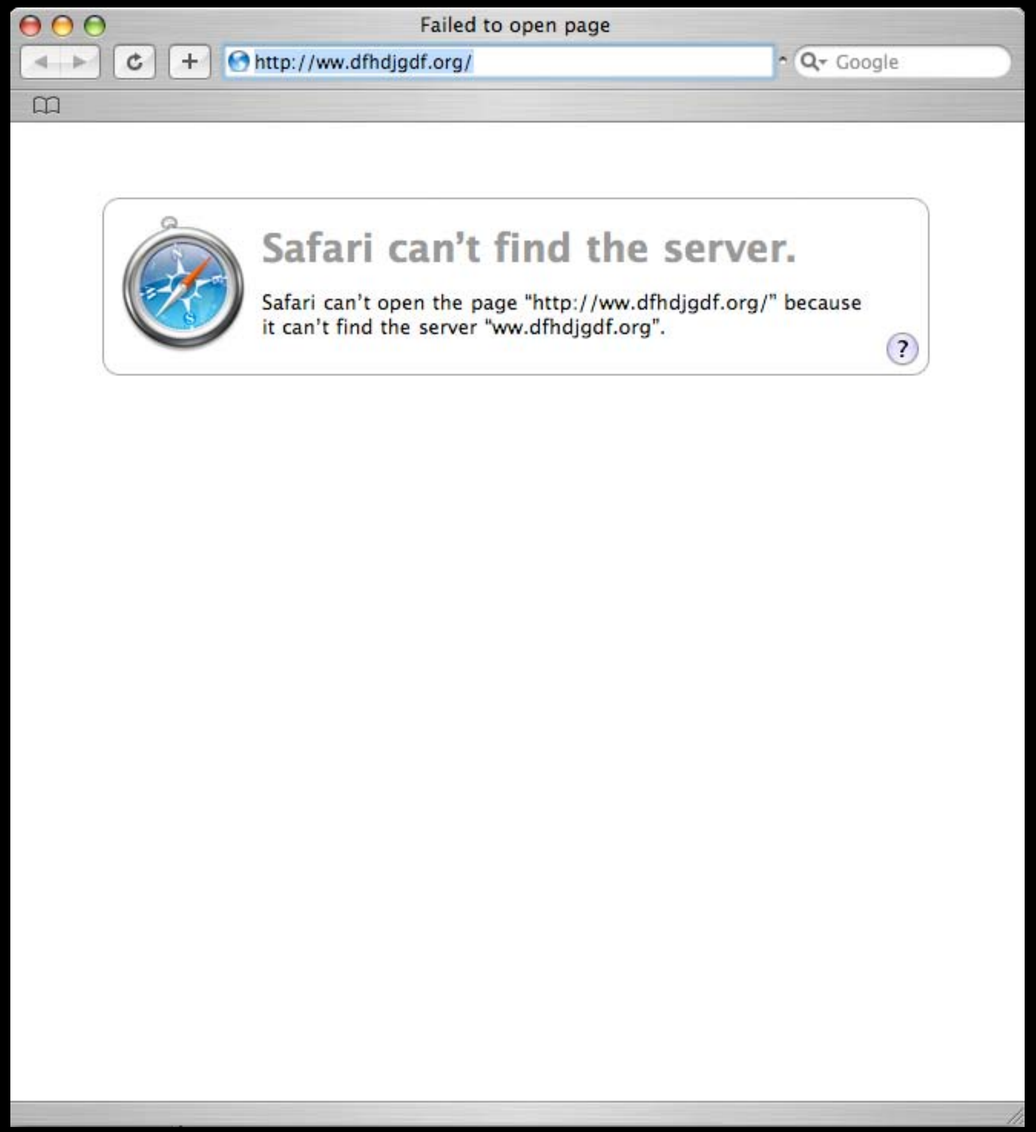
Administering Within JBoss

Chris Pavicich
WebObjects Engineer

http://developer.apple.com/wwdc2005/

Beauty Is Not Love





What Can Go Wrong

- Database problems
- Host connectivity issues
- WOAdaptor problems
- Application response issues
- Browser compatibility issues
- Other problems....

WOAdaptor Troubleshooting

Is your WOAdaptor distributing first requests according to policy?

```
curl ‘http://wodev/cgi-bin/WebObjects/Buggy’

-> <FONT SIZE=7>Bugs</FONT><P></P>Go to: <a href="/
cgi-bin/WebObjects/Buggy.woa/1/wo/WrQwz5ss6TOtJDmRMteaXw/
0.1">Categories</a><P></P><a href="/cgi-bin/WebObjects/
Buggy.woa/1/wo/WrQwz5ss6TOtJDmRMteaXw/0.3.0.0">3451375</a>....

-> <FONT SIZE=7>Bugs</FONT><P></P>Go to: <a href="/
cgi-bin/WebObjects/Buggy.woa/2/wo/KTAUlQl1aWMMn8fjNj4d3M/
0.1">....


  m/WebObjects\/Buggy.woa\/([0-9][0-9]*)\/wo/;
  $app = $1;
```

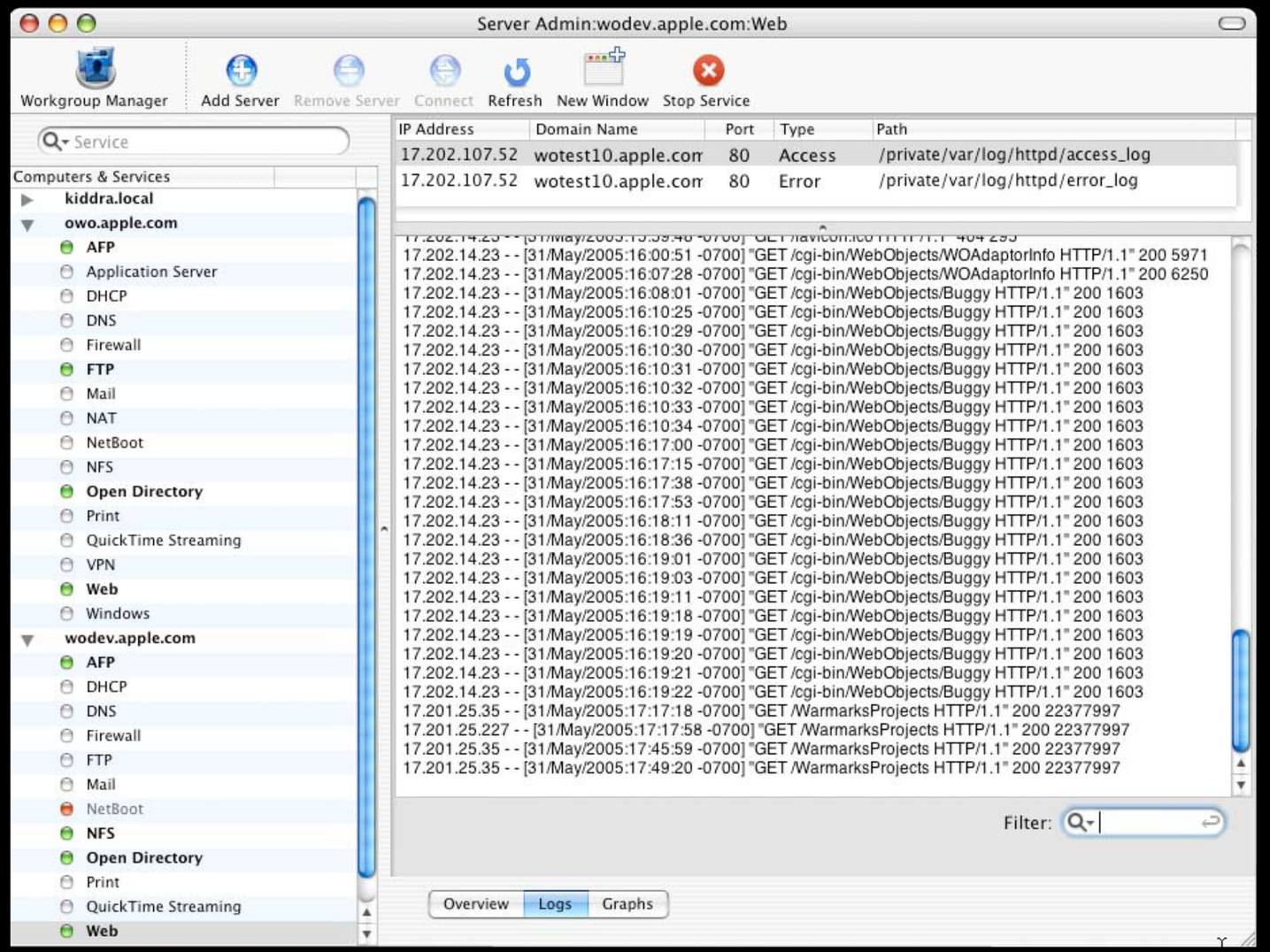
WOAdaptor Troubleshooting

Is your WOAdaptor responding quickly enough?

```
curl ‘http://wodev/cgi-bin/WebObjects/Buggy’
```

- What else? Get the data....

Issues with wotaskd or WOMonitor



Issues with wotaskd or WOMonitor

- Check server admin application
- Check:
  - /System/Library/LaunchDaemons/com.apple.wotaskd.plist
  - /System/Library/LaunchDaemons/com.apple.womonitor.plist

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple Computer//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
        <key>Disabled</key>
        <false/>
        <key>GroupName</key>
        <string>appserverusr</string>
        <key>Label</key>
        <string>com.webobjects.wotaskd</string>
        <key>OnDemand</key>
        <false/>
        <key>Program</key>
        <string>/System/Library/WebObjects/JavaApplications/wotaskd.woa/wotaskd</string>
        <key>ProgramArguments</key>
        <array>
                <string>wotaskd</string>
                <string>-WOPort</string>
                <string>1085</string>
        </array>
        <key>ServiceIPC</key>
        <false/>
        <key>UserName</key>
        <string>appserver</string>
</dict>
</plist>
```

Launching WOMonitor/WOTaskd

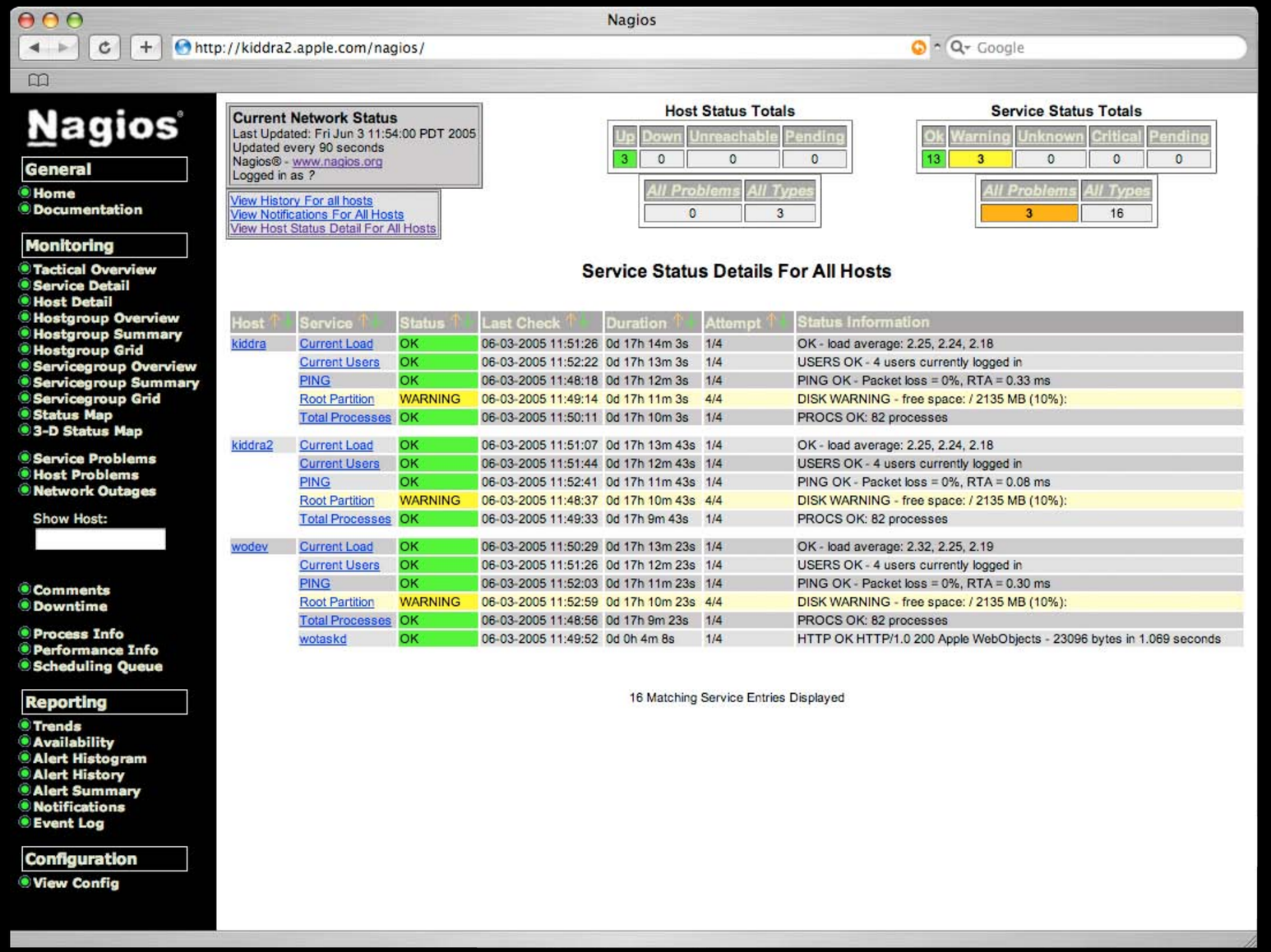
```
# launchctl load -w \
       /System/Library/LaunchDaemons/com.apple.wotaskd.plist

# launchctl unload -w \
       /System/Library/LaunchDaemons/com.apple.womonitor.plist
```

-w flag: resets <Disabled> tag and writes out new plist file....

Other Tools

- WOEventCenter monitoring
- Nagios
- JMX-based tools (i.e. from JBoss)

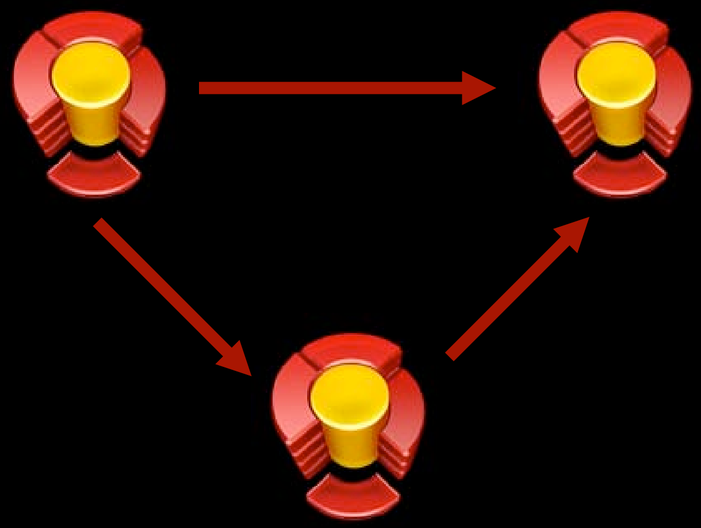
Nagios Example



Nagios Example

wodev	Current Load	OK	06-03-2005 11:50:29	0d 17h 13m 23s	1/4	OK - load average: 2.32, 2.25, 2
	Current Users	OK	06-03-2005 11:51:26	0d 17h 12m 23s	1/4	USERS OK - 4 users currently
	PING	OK	06-03-2005 11:52:03	0d 17h 11m 23s	1/4	PING OK - Packet loss = 0%, R
	Root Partition	WARNING	06-03-2005 11:52:59	0d 17h 10m 23s	4/4	DISK WARNING - free space: /
	Total Processes	OK	06-03-2005 11:48:56	0d 17h 9m 23s	1/4	PROCS OK: 82 processes
	wotasird	OK	06-03-2005 11:49:52	0d 0h 4m 8s	1/4	HTTP OK HTTP/1.0 200 Apple

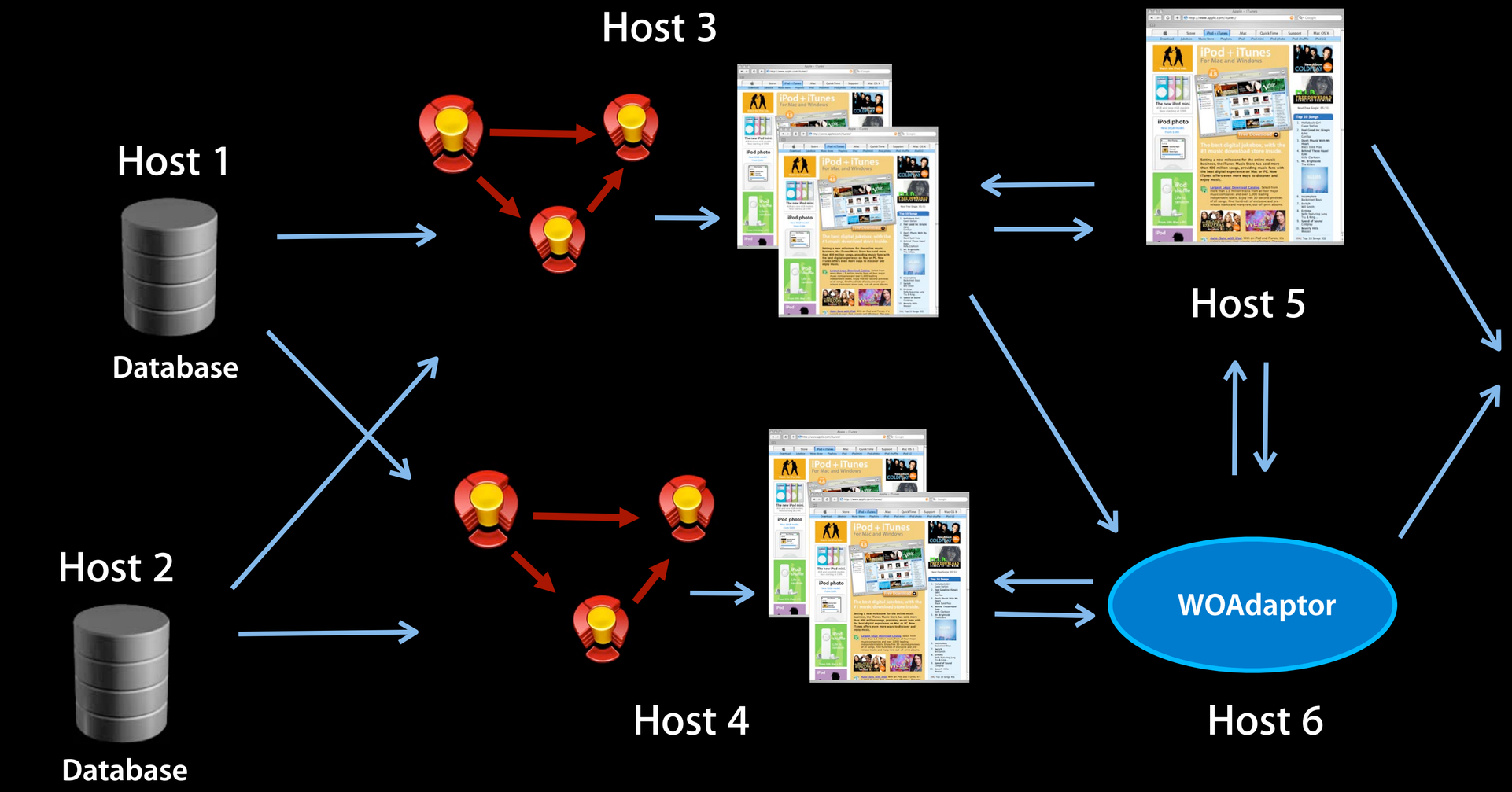
Love Is Not Music



Scalability

- WebObjects is configurable
- Scales up to world-class deployment scenarios
- Find your bottlenecks by looking, not by guessing!

Un-Bundling Parts of a WO Application



Scalability Checklist, Part 1

- Is your database as fast as it can be?
  - Test via native command-line tools
  - Test directly through JDBC driver
- Is your Application's EOF stack properly tuned?
  - Maxing out on memory?
  - Objects being garbage collected quickly enough?
- Custom WOComponents tuned for performance?
  - WOEvents for information
  - Each tuned to its task?

Scalability Checklist, Part 2

- ….
- Custom WOComponents tuned for performance?
  - WOEvents for information
  - Each tuned to its task?
- Static resources loading from fast web server?
  - Can server be outside of busy network?
  - Resources as small as they can be?
- WOAdaptor performing as expected?
  - Check first-hit distribution, as intended?
  - Compare to direct-connect speed
- Test for performance, to expected, then * 10, 100, 1000, ….

Music Is the Best!

More Information

http://developer.apple.com/wwdc2005/

Documentation, Sample Code, and Other Resources

http://developer.apple.com/wwdc2005/

Related Sessions

WebObjects Developement Lab	Enterprise IT Lab Wednesday 10:30AM
WebObjects Performance Optimization	Session 637 Friday 2:00PM
Mac OS X Server Feedback Forum	Session 614 Wednesday 10:30AM
Customizing Mac OS X Using Open Source	Session 508 Wednesday 3:30PM
Java and WebObjects Feedback Forum	Session 641 Friday 3:30PM

Q&A

http://developer.apple.com/wwdc2005/

WWDC2005

Worldwide Developers Conference